

REMARKS

The Office Action of December 13, 2006 has been received and reviewed.

Claims 1-9 are currently pending and under consideration in the above-referenced application. Each of claims 1-9 stands rejected.

Reconsideration of the above-referenced application is respectfully requested.

Rejections under 35 U.S.C. § 102

Claims 1-7 have been rejected under 35 U.S.C. § 102(b) for being drawn to subject matter that is allegedly anticipated by the subject matter described in U.S. Patent 5,143,663 to Leyden et al. (hereinafter "Leyden").

A claim is anticipated only if each and every element, as set forth in the claim, is found, either expressly or inherently described, in a single reference which qualifies as prior art under 35 U.S.C. § 102. *Verdegaal Brothers v. Union Oil Co. of California*, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). The identical invention must be shown in as complete detail as is contained in the claim. *Richardson v. Suzuki Motor Co.*, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989).

Leyden describes, among other things, a dual chamber resin vat that facilitates the integration of cleaning and post-curing processes into part building. Col. 20, lines 29-33. The dual chamber resin vat includes a first chamber 100, a second chamber 101, and a partition 102 that may be positioned between the first chamber 100 and the second chamber 101 so as to substantially separate the first and second chambers 100 and 101 from each other. FIGs. 4a-4d; col. 20, lines 34-36. Part building occurs in the first chamber 100, while post-fabrication processing (*e.g.*, further curing) is effected in the second chamber 101. *See, e.g.*, FIG. 4b. When a part 109 is being built, an ultrasonic transducer 110 in the first chamber 100 removes excess resin 111 from portions of a fabricated part 109 as those portions are submerged within an "intermediate liquid" that underlies the ultraviolet radiation-curable resin from which the part 109 is fabricated. FIG. 4c; col. 22, lines 23-33.

Leyden lacks any express or inherent description that the "intermediate liquid" may comprise a consolidatable fabrication material. Rather, of the many examples of "intermediate liquids" that are provided in Leyden, none may be used as a fabrication material in the apparatus

that is described in Leyden. *See, e.g.*, col. 15, line 6, to col. 20, line 26; *see also*, col. 20, lines 41-51 (which explains that post-curing processes include flooding a newly fabricated part with ultraviolet radiation, which, if the “intermediate liquid” were consolidatable by the disclosed stereolithography apparatus, would also be solidified).

It is, therefore, respectfully submitted that Leyden does not expressly or inherently describe, or anticipate, a stereolithography apparatus with a fabrication chamber that contains a volume of liquid material that consists essentially of a consolidatable fabrication material, as recited in independent claim 1, as amended and presented herein. As such, it is respectfully submitted that, under 35 U.S.C. § 102(b), the subject matter to which amended independent claim 1 is drawn is allowable over the subject matter described in Leyden.

Claims 2-7 are each allowable, among other reasons, for depending directly or indirectly from independent claim 1, which is allowable.

Withdrawal of the 35 U.S.C. § 102(b) rejections of claims 1-7 is respectfully solicited, as is the allowance of each of these claims.

Rejections Under 35 U.S.C. § 103(a)

Claims 8 and 9 are rejected under 35 U.S.C. § 103(a) for being drawn to subject matter that is purportedly unpatentable over the subject matter taught in Leyden, in view of teachings from U.S. Patent 5,610,683 to Takahashi, U.S. Patent 5,824,250 to Whalen et al. (hereinafter “Whalen”), or U.S. Patent 6,190,008 to Iwashita et al. (hereinafter “Iwashita”).

The standard for establishing and maintaining a rejection under 35 U.S.C. § 103(a) is set forth in M.P.E.P. § 706.02(j), which provides:

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both

be found in the prior art, and not based on applicant's disclosure.
In re Vaeck, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

Claims 8 and 9 are both allowable, among other reasons, for depending directly and indirectly, respectively, from independent claim 1, which is allowable.

It is further submitted that a *prima facie* case of obviousness has not been established against either claim 8 or claim 9.

As acknowledged in the outstanding Office Action, Leyden lacks any teaching or suggestion of a negative pressure source for applying a negative pressure to a volume of liquid.

The teachings and suggestions of Takahashi are limited to applying negative pressure to a liquid 23 within which an optical element 7 of a lithography apparatus is submerged. col. 7, lines 7-58. The liquid 23 is not the photoimageable material that is to be exposed by use of the lithography apparatus. *See, id.*

In Whalen, bubbles are removed from a slurry placed within the cavity of a mold that has been formed by stereolithography, not from a volume of liquid material that consists essentially of consolidatable fabrication material that is contained within a fabrication chamber of a stereolithography apparatus.

The teachings of Iwashita are limited to techniques for removing bubbles from ink within ink jet heads, not from a volume of liquid material that consists essentially of consolidatable fabrication material is contained within a fabrication chamber of a stereolithography apparatus.

Thus, each of Leyden, Takahashi, Whalen, and Iwashita lacks any teaching or suggestion of an apparatus that includes a negative pressure source for applying a negative pressure to a volume of liquid material consisting essentially of a consolidatable fabrication material that is contained within a fabrication chamber of the apparatus, as would be required to render obvious the subject matter recited in claim 8.

Since none of these references teaches or suggests an apparatus with a negative pressure source that is configured to apply a negative pressure to a volume of liquid material consisting essentially of a consolidatable material contained within a fabrication chamber of the apparatus, and because the relevant liquids of each of Leyden, Takahashi, Whalen, and Iwashita are used for different purposes and have different properties, it is respectfully submitted that, without the

hindsight from which the Office benefits, one of ordinary skill in the art wouldn't have been motivated to combine teachings from these references in the asserted manner.

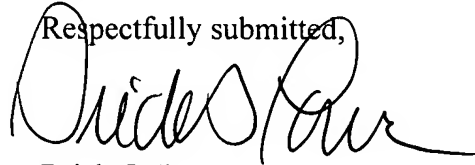
As the Office has not established a *prima facie* case of obviousness against claim 8 or claim 9, it is respectfully submitted that, under 35 U.S.C. § 103(a), the subject matter recited in both of these claims is allowable over any combination of teachings from Leyden, Takahashi, Whalen, and Iwashita.

It is respectfully requested that the 35 U.S.C. § 103(a) rejections of claims 8 and 9 be withdrawn, and that both of these claims be allowed.

CONCLUSION

It is respectfully submitted that each of claims 1-9 is allowable. An early notice of the allowability of each of these claims is respectfully solicited, as is an indication that the above-referenced application has been passed for issuance. If any issues preventing allowance of the above-referenced application remain which might be resolved by way of a telephone conference, the Office is kindly invited to contact the undersigned attorney.

Respectfully submitted,



Brick G. Power
Registration No. 38,581
Attorney for Applicant
TRASKBRITT, PC
P.O. Box 2550
Salt Lake City, Utah 84110-2550
Telephone: 801-532-1922

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